

In the claims:

1. (Currently amended) A low NO<sub>x</sub> producing furnace having walls and a floor comprising:

~~one or an array of burners~~ a burner on a wall or the floor of the furnace for introducing that introduce a lean combustible fuel gas [[lean]]-air mixture into a combustion zone adjacent to the burner ~~or burners~~; and

~~one or one or more arrays of~~ a secondary fuel gas nozzles located separate and remote from the burner or burners that introduce nozzle for introducing secondary fuel gas into the furnace ~~whereby the secondary fuel gas that~~ mixes with flue gases in the furnace~~[[,]]~~ and combusts with excess air, lowers the temperature of the burning fuel gas and reduces the formation of NO<sub>x</sub>, said secondary fuel gas nozzle being located separate and remote from said burner such that the secondary fuel gas is not encapsulated or surrounded by the fuel gas-air mixture from the burner thereby allowing secondary fuel gas to mix with flue gases in the furnace prior to the mixing with the fuel gas-air mixture.

2. (Currently amended) The low NO<sub>x</sub> producing furnace of claim 1 wherein the ~~one or one or more arrays of secondary fuel gas nozzles are~~ nozzle is positioned on one or more walls a wall or the floor of the furnace, ~~or both.~~

3. (Currently amended) The low NO<sub>x</sub> producing furnace of claim 1 wherein the ~~one or one or more arrays of secondary fuel gas nozzles direct~~ nozzle directs secondary fuel gas to ~~locations~~ a location in the furnace on the opposite side of the combustion zone from the burner ~~or burners.~~

4. (Currently amended) The low NO<sub>x</sub> producing furnace of claim 1 wherein the furnace contains an array of burners in at least one row or column and one or an array of secondary fuel gas nozzles.

5. (Currently amended) The low NO<sub>x</sub> producing furnace of claim ~~[[1]]~~ 4 wherein the burners are disposed in an array on the floor of the furnace and the secondary fuel gas is discharged from one or an array of secondary fuel gas nozzles on the floor of the furnace.

6. (Original) The low NO<sub>x</sub> producing furnace of claim 1 wherein the burners are disposed in an array on the floor of the furnace and the secondary fuel gas is discharged from one or an array of secondary fuel gas nozzles on the walls of the furnace.

7. (Original) The low NO<sub>x</sub> producing furnace of claim 1 wherein the burners are disposed in an array on the floor of the furnace and the secondary fuel gas is discharged from one or an array of secondary fuel gas nozzles on the floor of the furnace and from one or an array of secondary fuel gas nozzles on the walls of the furnace.

8. (Currently amended) The low NO<sub>x</sub> producing furnace of claim 1 wherein ~~each~~ the secondary fuel gas nozzle has at least one fuel delivery opening therein that discharges secondary fuel gas toward or away from the floor or walls of the furnace.

9. (Currently amended) The low NO<sub>x</sub> producing furnace of claim 1 wherein ~~each~~ the secondary fuel gas nozzle has multiple fuel delivery openings positioned to discharge fuel gas toward or away from the floor or walls of the furnace, or both.

10. (Original) The low NO<sub>x</sub> producing furnace of claim 1 wherein the furnace is a radiant wall furnace.

11. (Original) The low NO<sub>x</sub> producing furnace of claim 1 wherein the furnace is a vertical cylindrical furnace.

12. (Original) The low NO<sub>x</sub> producing furnace of claim 1 wherein the furnace is a cabin furnace, a boiler or other similar furnace.

13. (Currently amended) A method of burning fuel gas and air in a furnace whereby flue gases of reduced NO<sub>x</sub> content are formed comprising the steps of:

(a) providing a lean fuel gas ~~[[lean]]~~-air mixture to ~~one or an array of burners~~ a burner disposed on a wall or the floor of the furnace;

(b) causing the fuel gas ~~[[lean]]~~-air mixture to be discharged from the burner ~~or burners~~ whereby the mixture is burned at a relatively low temperature in a combustion zone and flue gases having low NO<sub>x</sub> content are formed therefrom; and

(c) providing secondary fuel gas to ~~one or one or more arrays of separate and remote~~ a secondary fuel gas ~~nozzles located~~ nozzle whereby the secondary fuel gas is discharged from the secondary fuel gas ~~nozzles~~ nozzle, mixes with flue gases in the furnace~~[[,]]~~ and combusts with excess air from the ~~burners~~ burner, lowers the temperature of the burning fuel gas and reduces the formation of NO<sub>x</sub>, said secondary fuel gas nozzle being located separate and remote from the burner such that the secondary fuel gas is not encapsulated or surrounded by the mixture of fuel gas and air from the burner thereby allowing secondary fuel gas to mix with flue gases in the furnace prior to mixing with the mixture of fuel gas and air from the burner.

14. (Currently amended) The method of claim 13 wherein the secondary fuel gas ~~nozzles discharge~~ nozzle discharges secondary fuel gas to a location in the furnace on the opposite side of the combustion zone from the ~~burners~~ burner.

15. (Currently amended) The method of claim 13 wherein the furnace includes a plurality of burners ~~are~~ disposed in an array on the floor of the furnace and the secondary fuel gas is discharged from one or an array of secondary fuel gas nozzles on the floor of the furnace.

16. (Currently amended) The method of claim 13 wherein the furnace includes a plurality of burners ~~are~~ disposed in an array on the floor of the furnace and the secondary fuel gas is discharged from one or an array of secondary fuel gas nozzles on the walls of the furnace.

17. (Currently amended) The method of claim 13 wherein the furnace includes a plurality of burners ~~are~~ disposed in an array on the floor of the furnace and the secondary fuel gas is discharged from one or an array of secondary fuel gas nozzles on the floor of the furnace and from one or an array of secondary fuel gas nozzles on the walls of the furnace.

18. (Currently amended) The method of claim 13 wherein ~~each~~ the secondary fuel gas nozzle has at least one fuel delivery opening therein to discharge secondary fuel gas toward or away from a wall or walls of the furnace.

19. (Currently amended) The method of claim 13 wherein ~~each~~ the secondary fuel gas nozzle has multiple fuel delivery openings positioned to discharge fuel gas toward or away from the furnace wall, or both.

20. (Original) The method of claim 13 wherein the furnace is a radiant wall furnace.

21. (Original) The method of claim 13 wherein the furnace is a vertical cylindrical furnace.

22. (Original) The method of claim 13 wherein the furnace is a cabin furnace, a boiler or other similar furnace.